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17 October 1984

USSR REPORT

ENERGY

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OIL AND GAS

MINISTER DISCUSSES GAS INDUSTRY STATUS, PROSPECTS

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Jul 84 p 3

[Interview with Vasiliy Aleksandrovich Dinkov, Mingazprom minister, by V. Kremer; date and place not specified]

[Text] [Question] At the beginning of this year, our newspaper printed the socialist obligations of Mingazprom enterprises and organizations. Planned gains are very high. In particular, a previously unprecedented annual increase in natural gas recovery, 46 billion cubic meters, is envisaged. How do you assess the sectors' work for this period?

[Answer] If briefly, I assess them positively. Compared to the identical period for last year, gas recovery has increased by 23.3 billion cubic meters. The quota for growth of labor productivity has been overfulfilled by 2.6 percent, and costs of output production, as compared to the plan, were lowered by 2 percent. In addition, 6 billion cubic meters of gas were recovered. So the rate for all basic indicators for the half year have gained more than planned by the obligations.

We must take special notice here of the contributions of the Western Siberian workers. The Tuymengazprom Industrial Association collective provided practically the entire all-union increase in gas recovery. Now, in this region's oil fields, a competition has developed to reach a gas recovery level of 1 billion cubic meters per day by the 115th anniversary of V. I. Lenin's birthday.

Now about what insured success. I would put the initiative of the labor collectives, and the creative and economic attitude to business in first place. Here, as comrade K. U. Chernenko noted at the February 1984 Plenum of the CPSU Central Committee, lie the greatest inexhaustible reserves of our progress.

The majority of the production associations and industrial enterprises of the industry adopted the counter proposals which increase the quotas set for the fourth year of the five-year-plan. The creative innovations of the workers, the numerous suggestions of production efficiency experts and innovators and progressive engineering solutions were stated within these counter proposals. Specialists and directors of central boards, administrations and industry headquarters departments participated actively in the

development of these counterproposals. With their help, measure for fuller utilization of operating capacities, economical consumption of resources and materials and the incorporation of scientifically sound norms and accepted standards were worked out locally. The ministry has taken control in the supervision of these measures.

The establishment of integrated, and start-to-finish crews in the gas industry, who work on a single job authorization, and who are paid according to the end result, has completely paid for itself. Almost 70 percent of drilling enterprise crews have gone over to the contract form of operation. Analysis shows that such self-supporting collectives work much more efficiently. Their labor productivity is 12 percent higher, and their production cost of footage per meter drilled is 17 percent lower than the sectorial average. We plan to introduce brigade cost accounting in practically all collectives before the end of the year.

Right here I would like to make a sort of observation. Each industry, of course, has its own specific nature, which puts its own imprint on the organizational forms and methods of operation. But this doesn't at all mean, as is sometimes thought, that an advanced experiment that is originated in one industry can't be used in another, or that one must invent something of one's "own".

What would a gas-producing association and, shall we say, an automobile plant seem to have in common? This, however, is precisely the Volga Automobile Plant experiment which they put into operation in the Orenburggaz-dobycha Production Association. Two years ago, after appropriate preparation, the Vasov control system of organization and wages, by production, was introduced here. As a result, while increasing productive capacity, we succeeded in markedly reducing the number of maintenance personnel and raising the operational reliability of projects at a major gas condensate field.

[Question] Vasilii Aleksandrovich, you mentioned the substantial contribution made by the Tyumen oblast gas workers toward fulfilling the obligations. The role of Western Siberia in the growth of fuel energetics is commonly known. But, evidently, opening up the northern fields has required the introduction of much that is new into traditional methods of gas recovery.

[Answer] Without a doubt. You see, here we met up not only with extremely severe natural and climatic conditions, but also with a completely different scale of production. We had to drop customary procedures and traditional designs. We can boldly say that development of the Western Siberian gas and oil stores was made possible thanks to the fact that the decision to do this by the party attracted the powerful scientific and technical potential of many sectors of industry.

Let us take the unique Urengoy field, which is providing the foremost increase of gas recovery in the country. Development of this field was made possible by large-diameter high-yield wells in a batter-cluster arrangement method.

This permits a 20 percent reduction in supply pipeline runs. Using the package and modular method of erecting gas-treatment complex structures produced substantial economic results. This cut construction and labor input time in half. And the installations themselves underwent significant alterations. Their productivity, while using less metal per unit, was twice as high as the largest units used during the last five-year plan.

In the Urengoy field, work goes on in conjunction with Minpribor to bring about an automated control system for the recovery and preparation of gas. Automation will help increase the yield from these strata and improve technical and economic indicators of field operation.

Major changes have come about in gas transport. The main pipelines, laid from Tyumen in the north to the European part of the country, are equipped with locally manufactured high-capacity pumping stations with from 16,000 to 25,000 kilowatt capacities. Uniformized plans for compressor stations built from easily assembled buildings have been drawn up, based on these machines.

New progressive technical and technological solutions will be used to the full extent to develop the Yamburg gas condensate field, our second most important. It goes into commercial operation by 1986. Conditions here are more complicated than in Urengoy. The field is located completely above the Arctic Circle in an area of continuous permafrost, with areas of impregnable ice. So it was decided to place the production equipment atop special block-pontoons which weigh over 600 tons. The field installation will be delivered to the construction area in a state of high factory-furnished readiness.

[Question] Lately, the share of natural gas in the fuel and power balance of the country has increased significantly. Please comment on this trend.

[Answer] I can cite exact figures. In 1984 the relative significance of gas in the USSR fuel and power balance is over 31 percent, whereas at the beginning of the 10th Five-Year Plan it hardly reached 22 percent. Two basic reasons can be referred to here. To begin with, explored reserves allow us to increase gas recovery at faster rates and to fulfill the requirements of the national economy and the population, and also of export requirements. Second, wide use of gas in industry is the way to intensify many technological processes and to increase the efficiency of all general production. That's the reason that at the first stage of the Power Program, the development of the gas industry was given an extremely important role in the supply of reliable power for our country's national economy. The fact that natural gas is the technological raw material of chemistry and petrochemistry should be taken into consideration. Also, a gas-chemical sub-industry has been established, and is successfully developing within the structure of the gas industry.

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OIL AND GAS

INSTITUTE DIRECTOR ADVOCATES EXPANSION OF PETROLEUM RECOVERY BASE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 18 Jul 84 p 2

[Article by N. Krylov, professor, director of the Institute for Geology and Development of Combustible Minerals, "The Road to New Horizons"]

[Text] More and more often of late, one hears the fairly strange definition "industrial science". Evidently what is meant is a system of scientific institutions, subordinate to ministries, called upon to promote the most rapid incorporation of the achievements of scientific thought into production. There do exist such institutions within the industries, though there is no industrial or departmental science, and there cannot be. Mendeleyev said, "Science has two objectives: foresight and use."

By now, oil and gas geology has matured into a natural and applied science, which our IGIRGI [Institute of the Geology and Development of Combustible Minerals] has been called upon to develop. While ours is the leading Minnefteprom organization in the area of oil and gas geology and geological exploration operations, it is at the same time the only petroleum institute attached to the USSR Academy of Sciences. And the past has fully confirmed the advantages of having a similar organizational base, which allows full utilization of the available scientific potential and the abundant traditions which have been formed in this country, to develop oil and gas recovery at accelerated rates.

Thanks to a most favorable combination of fundamental and applied directions, three basic objectives will be achieved. One is the planning and long-term estimation of the development of the oil and gas industry raw material base. One is increased efficiency in exploration, prospecting and development of oil- and gas-bearing formations. And finally, there is the safeguarding of information of the basic industries and technological processes of the oil and gas industries.

A high level of oil and gas recovery has been achieved in our country, and its future growth under conditions of ever-increasing difficulty in exploring new deposits will make special demands on science. These demands are impossible to satisfy without harmonious development, of both basic research, linked to the study of laws of deposit location, so as to improve prediction and selection of basic directions of geological and exploratory operations,

and applied research, directed toward fulfilling plans to increase reserves. In this connection, it is very important to study the dynamics of this relationship.

The last decade saw a significant increase in the proportion of applied studies, dictated by the requirements of the national economy. But--and this is an important feature--not by virtue of fundamental research. And the institute's development of the combined planning of geological and exploratory oil and gas operations is the most significant practical result of the reorganization. Today we can rightfully say that combined projects allow us to scientifically determine future trends in oil exploration, to optimize the geological and exploratory process, to take into consideration the peculiarity of geological structure and the conformance to principle of deposit location. These things make it possible to plan the distribution of varied and comprehensive geophysical and drilling operations more efficiently and to turn out estimations of deep drilling and oil reserve growth.

Combined projects are a fundamentally new form of the effect of science on practice while oil and gas geological and exploratory operations are being carried out. They are significant as a transition to a coordinated association of the efforts of all participatory organizations in achieving the main objective: the strengthening and expansion of the raw material base for oil and gas recovery. Combined planning permits efficient coordination of the actions of all services carrying out geological exploration: geological, geophysical, drilling, organizational and economic, materials and equipment provision etc.

Now we can also talk about the results of somewhat newer work. Fundamentally new data have been obtained about geology, and oil and gas presence. Thus, the presence of oil and gas in carbonaceous coal deposits has been confirmed in the southeastern Caspian plain, oil presence in Jurassic subsalt deposits in the Krasnodar and Stavropol regions and gas presence from these same rocks in the Chechen-Ingush area etc. The introduction of combined planning has favorably influenced the progress of oil exploration and prospecting in the Volga-Ural oil- and gas-bearing provinces, where significant oil reserve growth was attained. It furthered the fulfilling of tasks of the basic characteristics of the geological exploration process and there significant increase of operations to prepare uplifts and other type formations in the most promising directions of exploration and prospecting of hydrocarbon accumulations. It appears that the results of this operation would have been more substantial, had all the associations and geological organizations implemented a full complement of combined planning. And continued growth of combined planning is seen in the increased responsibility of production organizations at all stages of geological and exploratory operations.

At the present time, combined planning has exceeded the limits of a single ministry. Minnefteprom, Mingeo USSR and Mingazprom have adopted a resolution for the development of intersectorial planning for the period up to 1990 around areas of joint activity. And this should be taken to mean the coordination of planning measures with related organizations which insure

delivery of needed equipment, apparatuses, chemical reagents, exchange of experiments and bringing advanced labor techniques to drilling. It also seems timely, at this stage, to bring in the GKNT [USSR State Committee of the Council of Ministers for Science and Technology], which can coordinate and control the joint actions planned by the three ministries.

Implementation of the national Power Program is one of our most urgent national economic tasks. It requires the introduction of an efficient system and bold new solutions. At the IGI RGI collective, which just celebrated its 50th anniversary, we have a clear understanding of our role in this joint operation, and a vision of those scientific advances which are to be achieved.

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OIL AND GAS

TURKMEN FIRST-HALF OIL PRODUCTION, FUTURE PROSPECTS REVIEWED

Ashkhabad TURKMENSKAYA ISKRA in Russian 20 Jul 84 p 2

[Article by P. Polyubay, chief engineer of Turkmenneft' Production Association: "Great Things Ahead"]

[Text] The collective of Turkmenneft' Production Association, a recipient of the Order of Lenin, has fulfilled its six-month program. The growth of labor productivity exceeded the plan level by 2.4 percent. The collective fulfilled its task and socialist obligations ahead of schedule. Having undertaken to produce an additional 50,000 tons of oil and 20 million cubic meters of natural gas over the annual plan, the association's collectives have already produced and shipped over 44,000 tons of oil and over 42 million cubic meters of gas.

This has been achieved by more effectively using existing wells and by starting up new wells. Eighteen idle wells were put back into production, providing about 5,000 additional tons of oil. An additional 5,500 tons were produced from 6 new wells not included in the plan.

The collectives of the Leninneft' and Nebitdagneft' NGDU's [Oil and Gas Production Administrations] received a significant return from new formation pressure maintenance systems. Due to stable operation, gaslift wells were switched over to the compressor method.

The collectives of the Kumdagneft' and Kamyshldzhanef't' NGDU's were successful. The well underground repair and workover brigades of these administrations worked efficiently and harmoniously. The best brigades are those of foremen V. Annamuradov and K. Khodzhanizayov from Kumdagneft'; of R. Zeynurov and S. Karamamedov from Leninneft' and of M. Miradayev and F. Goncharenko from Nebitdagneft'. They are leading a constant struggle to guarantee swift, high-quality repairs and to increase the period between well repairs.

Throughout the association, 130 brigades from among the main professions reported that they had fulfilled ahead of schedule the plan and socialist obligations for three and one half years of the five-year plan. Eighteen brigades had fulfilled their four-year plans, while four had fulfilled their plans for four and one half years. The collective of foreman V. Sakhnov from the Kotur-Tepinskoye Drilling Administration completed its five-year task on 31 December of last year.

The oil workers are not resting on their laurels, however. The divisions of Turkmenneft' are continuing to widely implement brigade and shop cost accounting. For over a year, underground well repair and workover brigades have been operating on the new system, as have 13 drilling collectives from the Kuydzhinskoye, Nebit-Dagskoye and Kotur-Tepinskoye drilling administrations.

In the beginning of the second half-year, the production workers at Site No. 1 of Leninneft' and Site No. 2 of Nebitdagneft' began to organize and be paid by the contract method. They have a specific goal: to improve the output of each worker, increase the flow of fuel and make production more cost-effective. Therefore, the oil workers are carefully considering their organization and are reducing losses of resources and time.

Still, all reserves have not been put to use. During the first half, there was a shortfall in the number of wells switched over to mechanized production. Drilling enterprises did not achieve their drilling footage targets. The plan for injecting water into productive formations was not met.

Along with our own internal matters, there were breaks in the drilling conveyor, disruptions in supply and etc. Problems outside our jurisdiction took their toll. For instance, the problem of electric power supply to production sites in the Okarem-Gograndagskiy Rayon has still not been solved. Electrical power there is insufficient. Diesel fuel must be used to power all the drilling rigs, which leads to continual overconsumption. Because of insufficient electricity, the supply of process water for drilling and production is often disrupted. Poor power supply is also delaying the changeover of wells to mechanized production.

Turkmenneft' Association has ordered a project design and set aside funds to build an LEP-10 power line from Kumdag to Gograndag to Okarem. Construction of the line has begun. It was interrupted, however, by hurricane-force winds that toppled 25 power-line supports. Although Minergo [Ministry of Power and Electrification] directed Nebitdagenergo Repair Administration to repair the damage, they have, unfortunately, been slow to do so. Turkmenglavenergo is behind schedule in supplying the remaining power-line supports. Our letters and inquiries have so far not had the necessary effect on these organizations.

The thermochemical plant in Okarem has long needed renovation: it is worn out and undersized. This negatively affects the preparation of oil for transport and its subsequent marketing. The oil workers have an especially difficult time in winter. Now--during summer--is the time to complete the renovation of this plant. However, Turkmenneftestroy Trust is working very slowly on it.

After rectifying these problems, we will be able to improve oil and gas production efficiency. The divisions of Turkmenneft' Association are now making broad preparations to welcome the 60th Anniversary of the Turkmen SSR and the Turkmenistan Communist Party. The collectives are making every effort to ensure that the anniversary year will be a year of new accomplishments.

OIL AND GAS

DEVELOPMENT OF TURBODRILL DISCUSSED

Moscow MATERIAL'NO-TEKHNICHESKOYE SNABZHENIYE in Russian No 2, Feb 84 pp 23-26

[Article by Sh. Yusupov, Tyumen-Moscow]

[Text] It is now impossible to imagine the development of our economy without the Western Siberian fuel and energy complex. Judge for yourself. In the 1940's, we dreamed about annual production of 60 million tons of oil, while in 1982, Tyumen alone produced five times as much for the country. A constellation of fields has appeared within only 2 decades and Surgut, Nizhnevartovsk, Nefteyugansk and Urengoy have gained worldwide recognition. Medvezhye and Yambure fields are gaining power.

The increase of oil production in this kray during the current five-year plan comprised many tens of millions of tons and the volume of gas increased significantly.

Within a short time, our country emerged in first place in the world in oil production. Neither Soviet nor worldwide practice had ever previously known such a mighty thrust. Extensive use of an essentially new method of drilling wells--turbodrilling--contributed to a large extent to this success. Our country enjoys prestige in this field.

"During the prewar years, drilling in which rotation is imparted to the main cutting tool--the bit--from a rotor through a multiton column of drill string was the most widely used throughout the world," says Professor, Doctor of Technical Sciences M. T. Gusman. "The old oil-bearing regions were developed by this method."

With its many "pluses," rotary drilling still had several significant deficiencies: the rotational speed of the pipes and of the bit is limited. The time losses for lowering-hoisting operations, required to replace a failed cutting tool, were significant and inclined drilling was difficult.

A high-speed single-stage turbine imparted rotation to the bit through an oil-filled planetary reducer in the first turbodrill. "And what happens if only the bit itself rather than the entire drill string rotates?" The idea seemed simply fantasy at that time. But engineer M. A. Kapelyushnikov proceeded along this very path. He drilled a well by the new method at Baku for the first time in the world. The drill was rotated by turbines, which were set in motion by

water pumped upward. However, the technical and economic indicators of the turbodrill--this is what the machine was named--were worse than those of a rotary device. The innovation did not become widespread during those years.

A group of scientists undertook improvement of the turbodrill. A new organization was created--an experimental office of drilling, which posed the task of improving the specifications and design of M. A. Kapelyushnikov's turbodrill. The experiments of P. P. Shumilov, R. A. Ioannesyan, E. I. Tagiyev and M. T. Gusman yielded excellent results. And even now this sectional machine, pressed into round metal casing, is very modern and improved.

The unit developed 4 decades ago differed considerably from its predecessor: it had no reducer, its rotational speed was increased significantly and it was stable in operation. All the tests showed that turbodrilling is far superior to rotary drilling. The turbodrill was unassuming on the quality of fittings and pipes.

The developers of this new unit and the method of inclined sinking of wells were awarded the USSR State Prize.

The technical innovation was born at the very dawn of geological forecasts, prospecting and discoveries of new oil and gas fields. The "black gold" was located at that time in Bashkiriya, Tatariya and Kuybyshev and Perm oblasts. The hard rock of these regions yielded poorly to rotary drilling. The entire drill string had to be raised after every 5-10 meters of drilling, the worn bit had to be changed and the tool had to be lowered again.

The turbodrill with its high rotational speed traveled large distances to oil-bearing strata several times faster. The records set by the new unit became accessible to almost all brigades. It became possible to carry out inclined drilling. Selection of the point of placing the drilling rig was no longer of decisive significance: the well could be drilled with a significant inclination, drilling under marsh, swamps and lakes.

Cluster drilling then appeared. And this is very important: not only a more productive, but also a more resource-conserving technology arrived in the petroleum industry. It made it possible to conserve an enormous amount of scarce metal and expensive tools were utilized better.

The communication of a Soviet representative, made at one of the International Petroleum Congresses in Italy, that half the wells in the USSR are developed by using the turbodrill, stunned specialists. The technique of turbodrilling considerably outstripped the worldwide level of drilling. The United States and West Germany, where traditional rotary drilling was used, requested that the new invention of Soviet scientists and engineers be licensed.

Moreover, when oil-bearing Tyumen appeared on the geological map of our country, the entire accumulated experience of working with the turbodrill was used fully. The new method of drilling made it possible to develop all these reserves of the oil and gas kray within unprecedented short periods and made it possible to demonstrate the highest rates of developing the interior. Brigades of oil workers drilled 100,000 meters each within a year.

Development of the oil fields of Western Siberia is in itself fraught with great difficulties due to climatic and geographic conditions and becomes more complicated from year to year. The depth of drilling the wells increases constantly. More and more frequently, one has to drill to 3,000 meters for crude oil and fuel. This position has long been passed in other regions while the famous Kola expedition, as is known, drilled to a depth of 12 kilometers. I had occasion to see one of the cores retrieved by geologists of the Arctic region. Traces of the teeth of the cutting tool could be clearly seen on the black and white colors of the plate. Yes, our earth does not yield up its underground sources without a struggle.

The resistance of the beds increases as depth increases. The interior of Western Siberia is of course no exception. The specific weight of lowering-hoisting operations became too great and the role of drilling during a single cut then increased significantly. Corrections also had to be made in the strategy of turbodrilling. The main advantage of the turbodrill--high speeds--seemed to disappear. Under the new conditions, it was feasible to work at low speeds that impart a high torque to the bit. Therefore, specialists of the All-Union Scientific Research Institute of Drilling Technology developed and underwent a number of technical innovations during the past few years that considerably increase the rate of drilling and that improve the quality of drilling.

Any driller answers the question of what gives him the most difficulties in work will answer: the bit. The oil producers turn the handles of winches, pumps, diesels, prepare mud and increase the "candle" until the toothed cutters of the bit, gnawing into the hard earth, detect liquid fuel at the bottom of the borehole. How long one must wait for this event and how frequently the tool that has lost its teeth must be raised to the surface and be replaced by another!

All the previously utilized designs of bits tolerated only several hours of operation. One can now pleasantly talk about "previously." After a long search, the designers and scientists of the All-Union Scientific Research Institute of Drilling Equipment developed new long-life tools with special sealed oil-filled chambers for forced lubrication of the contiguous parts of the cutters, due to which their wear resistance is increased. And again it is pleasant to repeat: the service life-conserving technology has been improved. Less metal and other valuable materials are now required.

Tests conducted in different regions of the country showed that the economy and durability of the latest design of the drilling tool is several-fold higher than that of units with which many oil workers are supplied. Sinking during one lowering of the new tool was increased sharply. It is not inferior to the best worldwide specimens in many parameters.

The problem of developing new drill units was solved by several methods. By increasing the supplementary section on the turbodrill, it was possible to reduce the revolutions and a series of machines with hydraulic braking was developed and introduced. A model with separating flow of fluid was then developed. It permitted a sharp increase of pressure at the bottom and increased the torque of the bit. Foreign companies, who expressed a desire to acquire a license for it, were interested in this design.

A new era began in the petroleum industry. Units with independent suspended section and shock-absorbing devices appeared on the drill rigs. Extensive use of the new turbodrills permitted a considerable improvement in the economic indicators of the sector. Not only the mean cycles between repair of the turbodrills themselves were increased, but better conditions were provided for using rolling cutter bits by reducing the vibration of the drill strings.

The new unit was most welcome in prospecting drilling. A removable core lifter is located in the hollow shaft of the turbodrill if it is necessary to sample the core. A turbodrill with rotary housing began to be used in drilling when the steepness of the borehole shaft had to be overcome.

Another direction of the investigations of scientists and specialists of the All-Union Scientific Research Institute of Drilling Equipment led to development of an essentially new bottom motor--a helical motor. It differs considerably from the turbodrill: it is much simpler, less expensive and one-third as heavy. Its technical indicators are twofold higher than those of the turbodrill, while the rotational speed of the bit was reduced to the minimum possible number of revolutions. The working members of the motor are unusual: a multiscrew rotor and rubber stator are included instead of small turbines. The bit is set into rotation by a screw through a drive shaft and spindle. This rigid structure of the transmission permits high torque to be achieved at the bottom.

The use of a helical motor in drilling and in major overhaul of wells resulted in an immediate discernible saving, which is already estimated at several million rubles. The group of scientists who developed the new motor were awarded the Prize imeni Academician I. M. Gubkin. The English Drylex Company concluded a license agreement with Soviet foreign trade organizations to purchase these deep-well machines.

The new types of units make it possible not only to accelerate considerably the extraction of raw material from the earth, but also to conserve a large amount of metal used to manufacture them and to reduce the cost of producing important fuel energy resources. And of course, the problem of supply organizations, which do not have to deliver drilling equipment and spare parts for it to the oil fields in such large volumes as before and also do not have to haul units that have used up their service life, is facilitated. It is natural that the use of innovations also led to a reduction of transport shipments, made unusually difficult under conditions of the Siberian lack of roads.

The director of the All-Union Scientific Research Institute of Drilling Equipment Yuriy Vyacheslavovich Vadetskiy relates how there is great interest manifested in the developments of Soviet scientists abroad:

"We fill out up to 80 applications for patents every year. We sold three licenses last year. The result is a saving of each ruble expended on drilling with the new units. It comprises 4 or more rubles."

But the researchers still have many unresolved problems. These are the unsatisfactory practice of coordinations at each phase from the idea of development, manufacture and testing of a prototype to introduction of it. Up to 5-7 years are required to overcome these types of obstacles. The orders then have to be

placed with the manufacturing plants. And again there are signatures, comments and constant changes of deadlines.

I wish that the designers and engineers who developed new, so much needed equipment would be less concerned with material and technical support. We need special grades of metal, materials and makeup parts. And they are frequently lacking.

Tyumen Oblast has emerged to the level of producing 1 million tons of oil. And this is not the limit. The high-performance drilling equipment should contribute to reaching new positions. Therefore, all conditions must be created for a creative search of scientists and engineers to introduce extensively and universally the equipment that they have developed. After all, it will permit not only the most valuable fuel, needed so much by the country, but would also conserve many efforts, funds and time.

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OIL AND GAS

TYUMEN OIL PRODUCTION LAG EXPLAINED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 11 Jul 84 p 2

[Text] The industry performance review for January through April, published on 18 May, showed that the associations of Minnefteprom [Ministry of the Petroleum Industry] fell behind in fulfilling the oil production plan. The first deputy minister of the petroleum industry, V. Igrevskiy, replied to the editors. The production lag, according to his reply, was mainly due to the associations of Glavtyumenneftegaz, namely Surgutneftegaz, Noyabr'skneftegaz and Nizhnevartovskneftegaz, as well as the Azneft' Association.

Minnefteprom and Glavtyumenneftegaz developed and implemented a series of measures to correct the situation. Fifty well underground repair and workover brigades were sent to the Glavtyumenneftegaz associations from other oil-producing regions around the country. It was decided in May to increase this number to 110. The associations' own repair brigades were augmented. Sixteen oil-production enterprises are being formed in 10 production associations for full-time work in Tyumen Oblast. The basic types of oil-production equipment, special equipment and spare parts are to be shipped ahead of schedule to Glavtyumenneftegaz. Special attention was given to road repair, renovation and construction.

An order was issued on 15 May that strictly specified Glavtyumenneftegaz's tasks for making basic improvements in the utilization of existing oil wells. By January, 1985, 4,800 new wells are to be put into production, 3,400 wells are to be switched over to mechanized production and 1,596 idle wells are to be put back into production. This is significantly greater than the tasks specified earlier.

The review also correctly cites the need for Minkhimmash [Ministry of Chemical and Petroleum Machine Building] plants to improve the quality of the oil-production equipment and devices they supply to the oil industry. Quality does not presently meet current requirements, approved technical specifications and norms. The oil industry is especially critical of Christmas trees and UPT 1-50 well-repair hoists from the Lieutenant Shmidt Plant; LPT-8 and Azinmash-43A well-repair hoists from the Kishlinskiy Machine-Building Plant; well-repair tools and equipment from the Ishimbayskiy Machine-Building Plant and SD9/100 well startup compressors from the Krasnodar Compressor Plant and the Borets Plant in Moscow.

Minnefteprom has begun working with Minkhimmash and other related ministries to improve the quality of equipment critical to the fulfillment of this year's plan tasks.

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OIL AND GAS

OIL DRILLING CATAMARAN ENTERS SERVICE

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 19 May 84 p 1

[Article by I. Serov: "Catamaran for the Continental Shelf"]

[Text] Vladivostok--An unusual vessel has left its berth at the Dal'zavod Shipyard on its first expedition. Its name--"Geolog Primor'ya"--gives an apt description of its function. It is a multipurpose catamaran. Why did the designers select a twin-hull design? Catamarans are very stable--they don't rock very much. This is especially important when drilling offshore.

The "Geolog Primor'ya" was specifically designed for exploration and drilling in the shallow waters of the continental shelf. The catamaran's crew will search for minerals, oil and gas on our country's Pacific Coast. The vessel is completely equipped for these tasks. A drilling rig is mounted on the deck. The sea trials and drill rig tests were successfully completed. The marine geologists of the Far East have high hopes for the new vessel, which is still the only one of its type.

"How is exploration usually carried out on the far-eastern continental shelf?" says the captain of the catamaran, K. Derzhavin. "A floating platform is held in place by cables from the shore. The drillers live in tents on shore. Sometimes, while the workers were waiting out a storm on land, the platform broke away and floated out to sea. Geologists have long needed such a reliable and mobile vessel..."

The experimental scientific ship was developed by the collective of Dal'zavod, the oldest shipyard in the Far East and one that has won honors. More than one difficult problem had to be solved during the development. Equipment was installed on the catamaran after it was launched, and the launching itself was unusual. The twin-hulled vessel, resting on special ways, was launched sideways into Zolotoy Rog Bay.

The ship's white hulls are connected by an arch. The broad superstructure is topped by a mast. The deck is made of cedar. There is linoleum and tile in the cabins, and beautiful furniture... The Dal'zavod workers gave careful consideration to creating good working conditions for the marine geologists.

The vessel's range is 15 days," explained the captain. "Remote control of equipment and instruments will guarantee comfortable and safe working

conditions. We have everything we need to do a complete exploration cycle. The maximum drilling depth is 200 meters..."

We met Captain K. Derzhavin shortly before the vessel departed. He was holding the vessel's chronometer--it was time to set it to Greenwich Mean Time. Speaking of the vessel's features, Derzhavin said that testing had shown that the vessel could be positioned even more quickly than the designers had estimated. Since the vessel will operate around the clock, it will probably pay for itself sooner than had been anticipated.

The new vessel is at the disposal of Primorgeologiya Association. V. Raspopov, chief of the association's maritime department and a member of the commission that accepted the vessel, said:

"The commission was unanimous in its evaluation: the catamaran is suitable for its main purpose--drilling on the continental shelf. The vessel will allow us to expand our exploration area..."

Now, everything is ready for the first expedition.

"Cast off. Slow speed," commands the captain.

Behind them is the berth at Dal'zavod. Ahead of them, beyond a stretch of blue sea, is the western shore of Kamchatka. Science and technology have taken another step toward recovering the unique natural resources of the Pacific Ocean.

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OIL AND GAS

PROJECT DESIGNER-PRODUCER RELATIONS REMAIN DIFFICULT

Ashkhabad TURKMENSKAYA ISKRA in Russian 10 Jul 84 p 2

[Article by A. Bekmetov, chief, implementation department of TurkmenNIPIneft'
[Turkmen Oil Industry Scientific Research and Project Institute]: "Miscountings
of Cost Accounting"]

[Text] The main task of Turkmen oil workers is to efficiently develop natural resources as fully as possible.

Scientists, specialists and oil-production workers are responsible not only for present successes, but also for future oil production in Turkmenistan. This is how Candidate of Technical Sciences N. Shirdzhanov put the question in his article in TURKMENSKAYA ISKRA. His article ("How to 'Awaken' the Formation?" TURKMENSKAYA ISKRA, 22 January 1983) proposed a review of the character, status and direction of work done jointly by the divisions and enterprises of Turkmenneft' and scientists from TurkmenNIPIneft'.

However, the association's specialists and directors of the institutions gave no special attention to this proposal, although it was addressed to them. This was apparently because they did not wish to take on any new responsibilities connected with implementing new developments.

The most important task at present is to put scientific discoveries and inventions into production quickly.

The efforts of TurkmenNIPIneft' are directed toward equipping the basic oil-production links with the latest equipment and technology. In the past year alone, the enterprises of Turkmenneft' Association have saved 3.5 million rubles by implementing new technology and equipment. This success is in no small way due to the new unified cost accounting system for developing and implementing new equipment and innovative technology. Implementation of the new system, based on contract orders, began in 1982. The system provides a framework: the customer presents a specific task to the executor. The executor--a division of the institute--guarantees significant economic savings, provided that the customer shows an interest in participating and the innovation is fully implemented.

This is an ideal interrelationship between science and production. If the actual state of affairs was closer to this ideal, the results of our cooperation would be more significant.

N. Sh. Shirdzhanov, chief of the laboratory of new methods for oil recovery improvement, presented in his article "How to 'Awaken' the Formation?" only a few facts that characterize the customer as not being very interested in reducing design and development time. It is a paradox, but we often run into such situations and it is difficult to resolve them. N. Shirdzhanov's article was published over a year ago. However, no changes have taken place in relations between the design and production organizations. The fate of a number of inventions is up in the air, due to the customer's indifference. A new mycelial solution is awaiting application. Its expensive components have been replaced by waste products from the Bayram-Ali Fats and Oils Plant. The new solution can improve formation oil production while significantly reducing costs. The association's management has been promising for a year to solve the problem of transporting the waste products from Bayram-Ali to Nebit-Dag. Meanwhile, this valuable innovation remains unproductive.

Unfortunately, we encounter this kind of situation not only in the early stages of development, but also after production testing is complete and preparations are being made to widely implement the innovation.

We are as aware as anyone of the difficulties that the association is presently experiencing. The institute's collective is working to eliminate problem areas in all stages of oil production, from drilling to production. The biggest problem is the long periods needed to put new fields into production. This has been blamed on poor technico-economic indicators for drilling work, particularly exploratory drilling. Much time is spent in this stage doing various tasks and carrying out difficult, labor-intensive work. Because of this, drilling stops for five days or more, even when gas or oil finds are thought to be near.

New technology for determining differential and formation pressures by packerless measurement can increase drilling speeds. The new technology can also prevent complications that delay drilling and even result in wells being abandoned. This new method, developed in 1980 by the chief of the drilling department, R. Yegonyanets, reduces the time needed to measure parameters to 4-8 hours. In addition, it does not require the presence of additional specialists--the brigade itself can handle the work.

In 1981, the new measurement method was included in the implementation plan. In 1982, a contract-order was drawn up which specified the economic savings to be 125,000 R. However, this innovation is not being widely used. Only several brigades in the Kotur-Tepinskoye and Nebit-Dagskoye drilling administrations have taken up the new method. The Kuydzhinskoye and Okaremskoye exploratory drilling administrations are not using the method at all. For the association as a whole, only 23 of the 42 implementation operations have been carried out. No one has been interested in calculating the resultant savings.

A sore point at production sites has recently been the underground repair and workover of idle wells. The implementation of a device developed by the

institute to prevent casing string failure could help avoid the complicated operations that are needed after exploratory drill strings break. But its fate is similar to that of the aforementioned developments.

In 1982, the scientists guaranteed that up to 200,000 R would be saved if this innovation were implemented on 60 wells. Fifty-six wells were equipped with the device. The economic savings from this were not calculated. The total savings were not confirmed for 8 of the 28 items included in the implementation plan. The customer... forgot to do the necessary calculations, ignoring the requirements of the cost accounting system.

A year later the facts became known: over 208,000 rubles per year were saved as a result of the drill-string failure prevention device being installed in only 44 wells. The guaranteed savings turned out to be significantly higher for implementing the packerless measurement method at the Nebit-Dagskoye and Kuydzhiyskoye URB's [Exploratory Drilling Administrations].

It would seem that these facts would stimulate the customer to broaden the implementation of similar developments. However, this year's plan includes only 30 operations to implement the packerless method. The device to prevent casing string failure has completely disappeared from the unified implementation plan for new equipment and innovative technology.

New KU-25 universal gaslift valves showed in testing that they could provide a fair amount of savings. While providing double or more the yield of liquid fuel, the valve reduces specific gas consumption by half. The first use of this valve on test wells provided about 6,000 additional tons of oil. However, before recommending that the valves be widely used at Nebitdagneft' NGDU, the scientists cautioned the administration's specialists that it was necessary to carefully adjust the operating parameters of each gaslift well. They also cautioned that gas consumption had to be measured.

However, these cautions were not heeded, although the council of directors of Turkmenneft' Association recommended that a special gaslift service be formed. The service, unfortunately, was never formed.

"You're the ones who need to do it--you're the ones who do measurements and research," the scientists were told by Nebitdagneft'. They went ahead and equipped the remaining wells (1.5 times more wells than had been planned) with the universal valve without studying the specific parameters of each well. In short, this innovation, because it was carelessly introduced, did not produce the expected results.

This is but one of many examples of a careless approach to new technology, which leads to a shortfall in planned production from gaslift wells. The Leninneft' NGDU, for instance, overfulfilled its hydrocarbon production plan from free-flowing (mostly new) wells, while their gaslift plan was not fulfilled.

This situation has to be of concern to scientists, designers, inventors and the entire staff of the institute. The new requirements of the cost accounting system were supposed to elicit greater attention from the association's

management and make them more interested in end results. The developers and customers have an equal share in the savings produced by each innovation. Production must be vitally interested in implementing the efforts of scientists and designers as quickly and as well as possible. This was succinctly stated at the 24th CPSU Congress.

However, there is no support in the association for the proposal to concentrate the efforts of specialists that are working on problems of implementing new equipment and technology. Although there are five departments engaged in this work, no single one of them is responsible for ensuring that these innovations result in savings. No joint program has been developed--discussions have not even begun--for solving problems connected with increased oil yield. Numerous requests to broaden the institute's experimental-testing base have remained unanswered.

The roots of the failure to meet the requirements of the new system are hidden in the psychological unpreparedness of people to adopt new work methods. What does this mean for production and for the customer itself--Turkmenneft' Association? A calculation shows that the association has forfeited over 800,000 R in savings because they either refused to implement innovations or did not implement them to the extent they should have.

This loss is not due to the implementation of the cost accounting system. Rather, it is because the association is ill-prepared to enter a new phase in the development of production relationships. In this new phase, the assistance of science must become an integral part of the management mechanism. In addition, Turkmenneft' Association has, in order to take aim at eliminating its own mistakes, made every effort to squeeze the solution of the new tasks confronting science and production into an antiquated framework of methods and relationships.

EDITORS' NOTE: In addition to what A. M. Bekmetov wrote, we would like to add that no official reply to the article "How to 'Awaken' the Formation?" was received by the editorial staff of TURKMENSKAYA ISKRA. The article did not become the subject of serious discussions in the party committee of Turkmenneft' Association, as we believe it should have. Neither did the Nebit-Dag Gorkom of the Turkmenistan CP give proper attention to important problems, such as the interaction between scientist-designers and customer specialists. These problems have prevented innovations from being speedily implemented. TuSSR Gosplan did not answer the proposal to create a coordinated committee to solve problems of increasing oil production.

One must assume that A. Bekmetov's article will force the enterprise directors at Turkmenneft' Association, as well as local party and economic organs, to give greater attention to solving the aforementioned problems within the required time frame.

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TECHNOLOGY FOR IMPROVING OIL PRODUCTION YIELD CITED

Moscow NEFTYANOYE KHOZYAYSTVO in Russian No 7, Jul 84 pp 3-6

[Article by B. S. Lobanov, (Tatneft'): "An Important Condition for Increasing the Efficiency of Oil Production Yield"]

[Text] A feature of the activities of the Tatneft' Association [Association of the Petroleum Industry of the Tatar ASSR] in recent years has been the continuous growth in the level of mechanized recovery processes. This represents the final results of work directly related to quality and promptness in accomplishing the ever-growing volume of work to repair above- and below-ground equipment. As of 1 January 1984 the association had more than 65,000 items of oilfield equipment with an overall value of more than 660 million rubles (not counting equipment in wells or for power). The number of mechanized recovery wells had reached 16,302, and injection wells, 3,942.

Experience has shown that an important resource for increasing the efficiency of yield is the combination of operations to mechanize recovery processes with steps to improve the organization of the technical maintenance and repair of basic stocks. In this connection, the association has, on the basis of long-range programs, systematically carried out the specialization and centralization of the technical maintenance and repair of pumping unit equipment and of the maintenance and major overhaul of wells, and has improved the organizational structure of production subunits and the forms of organizing their labor.

As a result, specialized centralized bases for production maintenance (TsBPO) have been set up and are in operation for the repair and rent of centrifugal electric pumping stations, and the major overhaul of wellsite and oilfield equipment and of NKT [pump and compressor pipe]. Also operating are specialized repair and construction administrations for the major overhaul and rebuilding of the equipment and pipelines of technical installations, storage tanks of field tank farms, etc.

Centralization is virtually complete for the major overhaul of the main types of wellsite equipment, type TsNS /centrifugal pump system/ and UETsP [electric centrifugal] pumps for injecting water into the formation, pumps for oil delivery within a field, pumping unit reducing gear, and the technical equipment of oil treatment installations. The major overhaul of pumping

units is accomplished by the unit method and the personnel of the TsBPO multipurpose brigades. The repair of wellsite earth-moving machines has also been taken in hand (16 machines per year), and 3500 drill, 1000 casing and 16,000 pump and compressor pipes are repaired annually.

Using the favorable experience in the centralization and specialization of repair of their own and other associations, the oilmen of Tataria have developed a program for the 11th Five-Year Plan to further improve the utilization indicators of the stock of mechanized wells and oilfield equipment. Its basic goal is to limit growth in the volume of repair jobs by improving reliability and increasing operating time between repairs for equipment and wells.

The program provides for: developing the technical base of repair subunits and improving repair technology in NGDU [Oil and Gas Production Administration] maintenance shops; increasing the volume and quality of the acceptance checking of equipment on arrival; increasing the scope of use of new types of equipment for oil recovery, especially high-reliability centrifugal electric pumping stations, bushingless sucker-rod pumps and sucker rods with improved corrosion-resistance features; equipping borehole pumps with means of protection and monitoring during their operation; employing computers for selecting pumping stations and analyzing their operation; and developing brigade forms for the organization and compensation of labor and for stimulating an increase in efficiency of output and quality of work.

The association is devoting much attention to the reconditioning or worn components by the use of hard facing and liners, they have accomplished the conversion to the next repair size and the application of polymer coatings, and they are conducting experimental work on the plasma coating of working surfaces with powdered materials. As a result of this, in 1983 the association's enterprises reclaimed more than 9000 scarce and expensive parts in 60 categories and overhauled 337 assorted pumps by coating the working elements with epoxy powders, including 233 pumps of the system for maintenance of reservoir pressure. More than 7600 items of equipment and 17,600 tons of pipe underwent acceptance checking, making it possible to reject 620 items of equipment and 560 tons of pipe. One hundred five centrifugal electric pump stations of improved reliability, 3560 bushingless sucker-rod pumps, and 8500 rods processed by TVCh /high-frequency current/.

The TsBPO forces have established the output for a large quantity of equipment and instruments for the brigades maintaining and overhauling wells, and in 1983 they produced 15 PTMT-40 masts, 36 mechanical tongs and 68 culture kiosks, and they manufactured 1302 well-head setups for bringing in newly drilled wells.

Enterprise production maintenance bases that repair and maintain equipment are being developed further.

In systematically carrying out this program the association has set up pump and compressor pipe preventive maintenance shops (in the Leninogorskneft', Irkenneft' and Yelkhovneft' NGDUs, and pipe bases for storing and drying

previously used pipe (in the Al'met'yevneft' and Suleyevneft' NGDUs). Pipe bases are being built at the Aznakayevskneft', Aktyubaneft' and Dzhalil'neft' NGDUs, and in the shop for No. 1 type pump and compressor pipe in the Prikamneft' NGDU. Twelve to fifteen percent of the existing pipe stock is annually repaired at NGDU pipe bases, which in recent years has permitted a reduction by a factor of 2.2 in the number of repairs due to breakdown.

The pipe bases under construction are being furnished with equipment developed by VNIITneft' /All-Union Scientific Research Institute of Oil/. However, equipment for the pipe bases is arriving unassembled, without roller conveyers, and not ready for production, and often requires extensive time to rectify numerous defects. Arrangements must be made to deliver this equipment assembled.

To improve the operating conditions for pump and compressor pipe and rods, the association has developed and produced a mobile platform (racks) for receiving and stacking them when performing maintenance. In 1982 on the base of this structure the SKTB /Special Design and Technological Office/ of the Soyuzneftemashremont VPO /Oil Machinery Repair Trust All-Union Production Association/ produced a mobile pneumatically operated platform. Acceptance tests have been conducted and recommendations made for assembly-line production, but production of them has not yet been set up.

Much work is being done to design and equip subsurface pumps with devices to prevent clogging during operation (sludge traps and filters), and a facility has been built for processing high frequency current rods (10,000 rods annually), at which they are presently adopting a method of applying protective coatings by technology suggested by MINKh i GP /Moscow Institute of the Petrochemical and Gas Industry/ imeni I. M. Gubkin.

As a result of the development of technical means of monitoring the operation of submerged centrifugal electric pumps, subsurface pressure and temperature sensors have been supplied and tested, the use of which has shown the feasibility of automatically putting an electric centrifugal pump unit into service, and also of constantly monitoring the pressure at the pump intake and the coolant temperature in a submerged electric motor. The TMS-3 thermomanometric system, which was produced on the base of these sensors, has undergone departmental testing and has been recommended for assembly-line production. In our opinion, equipping electric centrifugal pumps with these monitoring systems has significantly improved their reliability and the duration of their trouble-free operation, and, most of all, allows the wells to be operated without the presence of attendants.

There has been a still greater expansion in the use of ENS-type electric well heaters, which were designed by TatNIPIneft' /Tatar Scientific Research and Planning Institute for Oil/ and manufactured in the RETO /not further identified/ plant. In addition to improving the operating conditions of pumping stations as a result of reducing the viscosity of the fluid being pumped, use of ENS heaters has considerably shortened the length of time for completing wells with high-viscosity oils, and has expanded the area for employing assembly-line sucker-rod pumps.

On the recommendation of MINKh i GP imeni I. M. Gubkin the Yamashneft' and Nurlatneft' NGDUs are using vacuum-chamber pumps to prevent hangup of the sucker-rod string in wells with high-viscosity oil.

Efficient utilization of oilfield equipment is impossible without systematic record keeping and monitoring of its operation and of the quality of well logging, and without proper selection of equipment. The association is therefore doing considerable work using computers to record the indicators of equipment performance on the basis of warranty certificates and well maintenance records. Genuine conditions have been established for the centralized recording of time between repairs for the mechanized well stock, and for analyzing reasons for breakdown in pumping station assemblies. The task has also been assigned of setting up record keeping of the whereabouts and movements of the oilfield equipment of production and injection wells.

The accomplishment of these measures has allowed the association to attain high-quality indicators in exploiting production wells and oilfield equipment. Thus, the exploitation factor for the mechanized stock in 1983 was 0.957, the utilization factor for the stock was 0.938, and the time between repairs for exploiting wells with electric centrifugal pumps was 405 days and for wells with sucker-rod pumping stations, 380 days. The utilization factor for pumping equipment reached 0.887, was 0.792 for electric centrifugal pumps, 0.956 for pumping units, 0.908 for sucker-rod pumps, and 0.986 for sucker rods.

Inactive wells in 1983 comprised 1.5 percent, and 0.3 percent of wells were waiting completion after drilling or under construction.

The Tatneft' Association is going to devote much attention to improving the operating reliability of the formation pressure maintenance systems in which they are utilizing oilfield waste waters. In the association as a whole there are up to 239 cluster pumping stations and 70 individual units for water injection connected to 3943 injection wells. The total extent of pipeline was 13,120 km, of which 8624 m was high-pressure pipeline. One hundred thirty cluster pumping stations, 2218 injection wells and 5465 km of pipeline, of which 1171 km is high-pressure pipeline, are used for pumping oilfield waste waters.

Every year the number of formation pressure maintenance installations increases by 240-250 wells, 15-20 pumping stations are recommended for pumping waste waters, an additional 700-800 km of pipeline is constructed, and the volume of waste waters utilized in the formation pressure maintenance system increases by 10-12 million m^3 (in 1984 it reached 185 million m^3).

The wide use of oilfield waste waters to maintain formation pressure, along with its well known advantages, has considerably complicated the utilization of equipment in the distribution components of the formation pressure maintenance system because of high corrosive activity. In 1983 alone, of 8152 recorded pipeline failures, 7661 occurred in waste-water lines. Consequently, to maintain such equipment and installations in a technically serviceable state requires considerable outlays of labor and material.

The association is solving the problem of improving the reliability of installations and equipment of the formation pressure maintenance system in two ways: 1) retarding corrosion wear of distribution components and producing corrosion-resistant coatings for equipment and pipelines; 2) reducing the length of distribution components of the system to the minimum, and especially those designated for pumping aggressive waste waters or operating under high pressure.

To carry out the first direction the association has adopted a system of centralized major overhaul of the centrifugal-type electric pumps that inject water into the formation, and of UETsN. Their impellers have been covered with protective polymer coatings, and as a result trouble-free operating time while pumping waste water has increased four to six times (from 800-1000 hours up to 4500-6000 hours).

To reduce corrosion wear in intake and outlet pipelines they are using an inhibitor in the water being pumped. However, it is not possible to substantially improve the technical state of pipelines at the present time by use of an inhibitor, because of an acute shortage of corrosion inhibitors. It must also be kept in mind that inhibition is a temporary protection against corrosion and does not significantly prolong the service life of pipelines. For this reason the association is working jointly with TatNIPIneft' to produce pipe with high corrosion resistance. For this end, an experimental-industrial base has been designed and put into operation to line pipe with polythelene, and has an estimated annual capacity of 300 km of pipe. The service life of the lined pipe, in the estimates of the experts, should be no less than 16 years. The base also lines pipe with diameters of 114 and 159 mm, which is used for outlet pipelines for oilfield waste waters.

For the construction of low-pressure (intake) pipelines and oil-gathering networks for oils with a high content of hydrogen sulfide and water, pipe is being produced with a vitrified interior surface, which permits it to be welded by means of ordinary arc welding without disrupting the integrity of the coating in the area of the weld. In 1984 construction began of two shops to vitrify the interior surface of pipe with a diameter of 219-325 mm, with a total estimated capacity of 450 km of pipe per year. (Construction is projected of another shop in Aznakayevo to vitrify pipe with a diameter of 114-426 mm, with an annual capacity of 600 km).

The association is planning to expand the scope of use of protective coatings for the operating elements of pumps and the walls of tanks by polymer-powder, epoxy, and paint and varnish compounds.

To carry out measures corresponding to the second direction it is advisable to arrange for the provisional disposal of water in holding pumping stations (DNS). The utilization of waste waters directly at the installations that produced them (UPS) permits a significant reduction in fluid-pumping distance and in pipeline length, relieves the main facilities of processing oilfield waste waters, and reduces the corrosive activity of discharged waters by preventing their oxygenation.

A no less effective measure for decreasing pipeline length is the departure from the traditional location of pressure-collector chambers near the cluster pumping stations, and putting them near the injection wells. This makes it easier to perform an individual probe at an injection well by way of constructing an intake pipeline of relatively short length to each of them.

The association is presently developing steps to build facilities for the provisional disposal of waste water at all fields.

However, the measures indicated for improving the operating reliability of formation pressure maintenance installations have only reduced the severity of the problem to a certain extent, but they have not solved it completely for the entire industry network, from installations for water recovery to the driving of injection wells. This is hampered by an inadequate supply of special equipment and instruments.

Together with the efficient utilization of the production well stock, one of the indispensable conditions for the stable operation of oil-producing enterprises in reaching assigned levels of oil output is the reliable and uninterrupted functioning of the facilities of the formation pressure maintenance system and of the stock of injection wells: this is the main technical means of regulating the development and working of oil resources.

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OIL AND GAS

KARADAG DEEP WELL DRILLING SUGGESTED

Baku VYSHKA in Russian 12 Jul 84 p 2

[Article by R. Kender: "The Things Hopes are Set on"]

[Text] It would be interesting to know the feelings of the oil workers walking past Well No 45, a world's record holder. A memorial plaque tells of its famous past: "In 1933, at a depth of 504 meters, this well began flowing, yielding 20,000 tons of crude oil per day."

And how much does it produce now?

"A half-ton per day, and we're thankful for that", answers field director Tofik Akhundov.

But like a chess player looking at many different ways to move forward, administration geologist Gumbat Gadzhiyev adds, "And right now, Karadagneft' has unrecovered reserves at its disposal. I am convinced we are going to discover new deposits right here, at the lower horizons. At present, within the Karadag Oil and Gas Recovery Administration, there are 1,300 active wells with an average daily output of 0.7 to 0.8 tons of oil. It's a struggle, literally, for every kilogram. And only relentless care and scrupulousness in operating the producing well stock helps to fulfill the five-year plan and to increase fuel recovery, if only by a little.

Take 1981, the beginning of the five-year plan. Daily recovery of oil was 650 tons, and of gas--160,000 cubic meters. Present levels have risen to 742 tons of oil, two tons over the quota, and gas recovery has increased more than two-fold. Every 24 hours 20,000 cubic meters of gas are added to the above-plan tabulation. Quotas are overfulfilled every month. About 500 tons of oil and around 2,000,000 cubic meters of gas were recovered above the plan in the first half year."

Karadagneft' workers and specialists associate this stability with the reinforcement of procedures and production discipline, the adoption of new scientific methods of petroleum geology and with the arrival, four years ago, of the new administration director Kerim Kerimov and chief geologist Gumbat Gadzhiyev, candidate of geological and mineralogical sciences.

Putting an end to slackness was Kerimov's main requirement. During that four years the producing well stock was reduced, and even prior to that more than 15 percent had been considered hopeless and were shut down. Fuel recovery increased and so did the oil workers' salary--by 54 rubles. People worked with an excellent attitude, with animation and enthusiasm.

The Karadagneft' NGDU [Oil and Gas Production Administration] collaborates with tens of industrial scientific and research, and planning institutes.

"If we didn't maintain a relation with science in our industry, we wouldn't recover anything," says the chief geologist. "Our fathers' methods of recovery, used back when the oil fields were new and the oil flowed by itself, were one thing. But now, you have to emphasize progressive methods to recover the remaining oil. We want to turn the NGDU into a laboratory for testing the latest methods of oil recovery. Together with the scientists, we want to go deep into the earth and study the old deposits again. They can still contribute a lot to the national economy.

These are only a few examples.

Fulfilling the plan for gas recovery was difficult in April. Having hardly managed to meet the quota, there was concern about what should be done about the pressure of our obligations, about where to get 7,000,000 cubic meters of gas--the amount we were to recover by year's end. Arif Bagirov, senior geologist of the second field, was given two days to reserves to increase gas recovery at the Pirsagat field. In exactly two days Bagirov reported to the management, "Here's the solution. Right now, Well No 108 is temporarily inoperative. There has to be gas in that well. Let a crew open new filters." The chief administration geologist supported this idea. The management and leading specialists were in Pirsagat for several days, and did everything to get the well into production as quickly as possible.

The oilfield crew of Rasim Ragimov and Gyul'nazar Bakhyshev worked expeditiously and quickly for three days, and completed perforation of the well. The well was started up in the dark of night, and 38-to 40,000 cubic meters of gas added to the daily recovery levels. They not only met the quota, but overfulfilled the plan. Who gets the credit here? Senior field geologist Arif Bagirov, first of all. I thought he would be an old, experienced specialist who could see through the earth. But in front of me there sat a young engineer. A year ago he had graduated from the imeni M. Azizbekov Oil and Gas Institute by taking correspondence courses. He had worked as a technician at AzNIPIneft' [Azerbaijani Scientific, Research and Planning Institute] and studied at the same time. Gumbat Gadzhieyev recounts how a peaceful job in an institute laboratory was exchanged for the sleeplessness of the oil field: "When the institute specialists came to the NGDU, I noticed that one young fellow was bright, enthusiastic and avidly followed the business at hand. That is, for two straight days he stayed by the well where we were expecting to strike a good flow of oil. Just the sort of helper I had been looking for. So I offered him a job, and I see that I haven't made a mistake.

Every day, along with field supervisor Tofik Akhundov, they analyse the operation of the wells, choosing the most favorable operating schedule under the rapidly changing conditions of forced liquid withdrawal. Not long ago the drillers put a well, No 1481, into operation. It produces 10 tons of crude oil per day, twice as much as was predicted by the plan. But the young specialists decided that they could raise the recovery level. They increased the hanger size and the recovery level increased by two more tons, an influx equivalent to the operation of two wells.

By using new methods of geophysical research, pulsed-neutron logging in particular, Well No 1404 has been brought out of an extended period of downtime. They discovered a new filter, that unexpectedly began producing a ton of crude per day.

Foreman Beyukaga, Abilov's crew is one of the initiators of the competition, under the slogan "Daily Above-Plan Recovery". Every day the crew recovers 51 tons of fuel; a ton over the quota. Things have gone even better with the onset of summer: for the last six days, ten tons of fuel have been recovered at above-plan levels. The crew has a firm hold on first place in the socialist competition. According to the crew's tabulation, they have recovered 90 tons of above-plan oil and 92,000 cubic meters of gas since the beginning of the year. Their increased obligations, taken on for the year, have already been fulfilled.

What resources have been put into operation here? First of all, the experience of the labor force. On a 15-person crew, the veterans set the tone. The foreman Beyukaga Abilov himself has worked here four decades, knows the sigh of every well and can foresee and predict which of them may break down, and what should be done to avoid shutdown.

At this field, the pumper Arif Garivob has earned two Orders of Labor Glory. At present he services seven compressor wells, each of which produces above-plan petroleum. And pumper Yelena Fedorova? She, in fact, has reached retirement age, but has not quit. Or, for example, Vera Dorogeyeva, dispatcher at a control panel? For many years she was a gauger, and knows every storage tank stairway. Now she sits in a white coat in a warm booth, at the automated controls of 150 wells.

There are such people on every brigade. Abdulgaziz Galimov has been an oilfield crew chief for half a century, and to him it seems that, were he to leave the business, it would come to a halt.

And the members of his crew think the same way.

Gasan Gasanov also came to the Lok Batan region of the oil field almost forty years ago and is still quick on his feet.

On this day, fortune has smiled on him and his friends Yuzbash Yuzbashev and the young Asaf Mamedov who, like Gasanov, are veterans of this work. They told us, "We were worried about this well. It just underwent a major overhaul. We put it on a normal operating schedule and it's already producing 700 kilograms of fuel per day."

Today, at Karadagneft' NGDU all the economic indicators are satisfactory; labor productivity growth is surpassing the plan by 1.4 percent, operating production cost has been reduced and there is an above-plan profit.

So why are administration director K. Kerimov and leading specialists dissatisfied? What's worrying them?

"We are maintaining an increase in recovery levels," says K. Kerimov. "Now we need to bring other resources into the picture and go over to secondary and tertiary oil recovery methods. To do this we have to speed up deep-well drilling, which is far behind schedule here. We're using our major overhaul crews for drilling, and they've sunk nine shallow wells. We get 1 or 2 tons of oil from them, but deep wells could produce from 5 to 10 tons per day.

In 1981, four of the ministerial leaders of the institute were working at Karadagneft' NGDU. They concluded that this administration showed the most promise regarding a sharp increase in fuel recovery, and drafted plans for the development and construction of each field. In the long term it was planned to turn Karadagneft' NGDU in particular into a model and demonstration administration for drilling and construction of new areas.

For right now, plans for drilling and putting wells on production are far from being fully realized. At the very promising Prigasat field the pools at the low horizons of the pay section are being worked by only five producing wells, and only by two wells in the Karadag region. It's not much."

Brigades from four drilling enterprises are at work: the Neftechalin, Gobustan, Kyursangin and the Siazan, and only the Gobustan UBR [Drilling Operations Administration] is fulfilling plans. Drilling crews are far from enterprise base stations. They have little equipment, few people and there are frequent shut-downs and operational wastage because of organizational disorders.

The Karadagneft' NGDU management has repeatedly asked the Azneft' Association about moving drilling and installation brigades to Karadag. They have proven the economic advisability of having an oilfield and geophysical organization here. But a constructive solution to the question is still being postponed. But the future troubles the Karadag oil workers, for all their hopes to double and triple the oil output are first and foremost connected to the drilling of new, deep wells.

12659

CSO: 1811/399

OIL AND GAS

BRIEFS

GLAVTRUBOPROVODSTROY 1984 OBLIGATIONS--The collectives of Glavtruboprovodstroy organizations and enterprises have accepted the following socialist obligations for 1984. They will complete their annual program for contract work by 20 December, producing 50 million R worth of construction over and above the plan. This will be accomplished by improving production organization, implementing innovative pipeline welding methods, efficiently using construction machinery and equipment and reducing non-productive working time. They will improve labor productivity by 1.2 percent over the planned amount. They will reduce the cost of construction and installation work by an additional 0.5 percent and earn not less than 850,000 R in above-plan profits. They will put an 980-km section of the Urengoy-Tsentr I Gas Pipeline into operation 6 months ahead of schedule. They will complete line work on the Urengoy-Tsentr II Gas Pipeline and the Kholmogory-Klin Oil Pipeline ahead of schedule. They will complete not less than 65 percent of their construction and installation work using the brigade contract method. All completed projects will receive marks of "good" or "excellent." Through the efficient use of all resources, they will save 800 tons of metal, 900,000 kilowatt-hours of electricity and 1,060 tons of nominal fuel. They will achieve not less than 2.3 million R of nominal savings through the implementation of inventions and efficiency recommendations. They will take measures to improve workers' living and working conditions and will put 5,000 square meters of living space over the planned amount into use. [Excerpts] [Moscow TRUD in Russian 19 Jan 84 p 1] 12595

WELL-REPAIR ACHIEVEMENTS--Neftyanyye Kamni--The brigade of foreman Adil' Mamedov is planning to greet their professional holiday--Oil and Gas Industry Workers' Day--with great labor successes. The brigade is from the underground well repair shop of the Imeni 22nd CPSU Congress Oil and Gas Production Association. Since the beginning of the year, the brigade has made 195 well repairs, allowing them to complete their annual plan ahead of schedule. After reviewing the obligations that had been previously accepted, the shop's collective resolved to repair 120 wells over the plan at Neftyanyye Kamni, each well producing an average of 25-30 tons of oil per day. [Excerpts] [By A. Kyazimov] [Baku VYSHKA in Russian 9 Aug 84 p 1] 12595

OIL PRODUCTION ENHANCED--Ali-Bayramly (AZERINFORM)--The brigade of Musa Shakarov, from the Shirvanneft' NGDU [Oil and Gas Production Administration], has produced 400 tons of oil above plan. The brigade is operating on one of the sections of the Mishovdag Field. These leaders are searching in all directions for reserves to increase the production of natural fuel. The above-plan

production was achieved by additional shooting of productive formations. After shooting, several wells immediately increased production by 3-4 tons of oil per day. Good results were achieved in a number of sections after formation water was sealed. At ten other sites, well supports were increased. Acidization treatment was performed. Pipes were repaired and their inside surfaces painted with enamel. This also helped increase the daily above-plan production rate. [Excerpts] [Baku VYSHKA in Russian 29 Jul 84 p 1] 12595

NEW AZERBAIJAN OIL FIELD--Azerbaijan SSR (TASS)--A new oil field has been placed on the geological map of Azerbaijan. A producing well was drilled in the Kurinskaya Steppe. It produced 200 tons of crude in the first few days. The oil in this new field is relatively close to the surface. This will enable the field to be quickly and productively developed. [Text] [Moscow IZVESTIYA in Russian 1 Aug 84 p 2] 12595

WELL REPAIR LEADERS--The brigade of foreman Salemetdin Shukyurov is one of the best in the underground well repair shop of the Ordzhonikidzenef't NGDU [Oil and Gas Production Administration]. The achievements of these leaders confirm their reputation. Since the beginning of the year, they have performed 134 well repairs, completing their plan for 10 months. They have overfulfilled their time norms by an average of 35 percent. Working with spirit and enthusiasm, the repairmen have completed 92 percent of their wells ahead of schedule. One of these wells was No. 1731. Before it was repaired to a depth of 1,800 meters, it produced 8 tons of oil. It was a significant contributor to the production site. Therefore, the brigade resolved from the start to complete the repair work quickly. Despite the difficulty of the task, the well repairs were completed 30.7 hours ahead of schedule. This means that an additional 10 tons of oil were produced. The pace is set by the shifts of two operators: Vidadi Guliyev, deputy of the Azerbaijan SSR Supreme Soviet, and Imamkhan Kyazimov, deputy of the Kirovskiy Settlement Council. [Text] [By Z. Shelyan] [Baku VYSHKA in Russian 8 Aug 84 p 1] 12595

KARACHAGANAKSKOYE FIELD PREPARATIONS--Orenburg--Busy times have begun at the Karachaganakskoye Gas Condensate Field. Workers from Orenburggazstroy Trust, along with collectives from divisions of the USSR Ministry of Construction of Petroleum and Gas Industry Enterprises, are building the field's infrastructure. The construction workers are to put 47 million R worth of projects into production in the near future, including the primary gas preparation plant, pipelines, roads and social, cultural and retail buildings. [Text] [By I. Gavrilenko] [Moscow SEL'SKAYA ZHIZN' in Russian 1 Aug 84 p 1] 12595

BALTIC GAS PRODUCTION--Kaliningrad--Yet another railroad tank car has left the Znamensk Station of the Baltic Railroad for the Drogobych Oil Refinery. The car contains oil produced in excess of the seven-month plan by Kaliningradmorneftegazprom Association--the westernmost oil production site in the country. Precision work and strict observance of technological procedures has enabled the oil producers to raise their well production coefficient. This has brought the association an additional 1,200 tons of oil above the plan. At the beginning of the year, an additional chart appeared in the association's documentation: the amount of gas produced for domestic use. The gas had previously been flared off. After completion of a pipeline, the residents of

the oblast center began receiving natural gas. Almost 4.5 million cubic meters have been produced up to the present time. This is equal to 5,000 tons of coal. [Text] [By I. Kasyukov] [Moscow IZVESTIYA in Russian 27 Jul 84 p 1] 12595

NATIONAL DEEP DRILLING PROGRAM--Baku--Eleven wells will be drilled within the framework of a program of very deep drilling, now being implemented in the Soviet Union. Two of these wells are now in operation: the Kol'skaya and the Saatlinskaya in Azerbaidjan. Their depths exceed 12 and 8 km, respectively. These wells were discussed at a coordinated meeting of scientists and specialists in Baku. The Kol'skaya and Saatlinskaya deep wells have become valuable scientific laboratories, it was noted. The information obtained from these wells will allow scientists to clarify much geophysical data about the earth's structure. This will make it possible to better direct the search for natural resources. Two more wells will be started this year: one in the Ukraine, near Poltava, and one near Aktyubinsk in Kazakhstan. Preparations are underway to drill wells in the Kuban and Tyumen oil and gas regions, as well as in ore-producing regions such as Ural'sk, Krivoy Rog and Murantau (Uzbekistan). They will be drilled during the present five-year plan. One hundred and fifty research institutes representing 15 industrial sectors are participating in the joint deep-drilling program, which covers the period up to the year 2000. The program will be accomplished with new types of equipment developed by Soviet scientists and specialists. It will make important contributions to earth science and give a better evaluation of exploration prospects in various parts of the country. [Text] [By A. Gol'denberg] [Ashkhabad TURKMENSKAYA ISKRA in Russian 19 Jun 84 p 3] 12595

GAS, FERTILIZER MINISTRIES' PROJECTS--The editors have been informed of the following measures: 1) V. Timonin, first deputy minister of the Gas Industry and N. Zarudniy, deputy chief of Glavmorneftegaz of the same ministry, replied to the letter from A. Alekseyev and V. Gritsay, workers in Severneftegaz Oil and Gas Production Administration of Sakhalinmorneftegazprom Association. It was decided to build a heating pipeline from the Okhinskaya TETs to Okha. It will be put into operation in 1986. 2) I. Filippenko, chief of Soyuzsera Association of the Ministry of Mineral Fertilizer Production, replied to a letter from V. Ryabov and M. Tonkoshkuryy, colleagues at the Lvov All-Union Sulfur Scientific Research and Project Institute. During the 11th Five-Year Plan, Sera Association plans to complete about 140,000 square meters of living space--twice the amount in the previous five-year plan. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 9 Aug 84 p 2] 12595

CSO: 1822/417

GENERAL

RESULTS OF FUEL-ENERGY COMPLEX MEETING DESCRIBED

Baku VYSHKA in Russian 20 May 84 p 2

[Article: "Petroleum VUZ Chancellors Council"]

[Text] How can one achieve the greatest effect in training the specialists who must solve in practice the problems involved in further developing the country's fuel-energy complex? The directors of specialized institutes discussed this problem and methods and ways to improve the training and education of USSR petroleum VUZ students during the meeting of the chancellors council which was concluded on 19 May in Baku. It took place in the Azerbaijan Petroleum and Chemical Institute imeni M. Azizbekov.

At the request of an Azerinform correspondent, I. A. Ibragimov, chancellor of the Azerbaijan Petroleum and Chemical Institute and academician in the Azerbaijan SSR Academy of Sciences who chaired the meeting, comments on the results of the meeting:

"The chancellors of all VUZ, who prepare specialists in the fields of prospecting, extracting and refining oil and gas, petrochemicals, and the planning in these branches of the economy, gathered together in Baku. In our country, institutes in Moscow, Baku, Groznyy, Ivano-Frankovsk, Tyumen, Ufa, and Ukhta now turn them out. Questions concerning the improvement of training programs in light of the growing tasks, which have been assigned by the party to Soviet higher schools, and the requirements of scientific and technical progress were at the center of attention of the chancellors. Ways to widely incorporate computer equipment into the training process were discussed -- so to speak, the general computerization of the students.

"Special attention was paid to the problems of improving the selection of first year students, intensifying professional orientation work, and beginning earlier -- from the third class -- the assignment of the future specialists so that they may more effectively adapt to the work collectives in which they will have to work. Professor V. N. Vinogradov, chancellor of the country's base VUZ for higher petroleum education -- the Moscow Petrochemical and Gas Industry Institute imeni Academician I. M. Gubkin and Hero of Socialist Labor, shared his experiences in improving the training process."

The participants in the meeting met with the 10th-year students of Leninskiy Rayon. They told the grandsons and great-grandsons of those, who worked in the first oil areas of the oldest oil producing rayon in the country, about the demands which have now been laid upon the youth who have decided to devote themselves to the difficult and noble petroleum career.

8802

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GENERAL

CONSTRUCTION OF PETROLEUM REFINING COMPLEX DESCRIBED

Moscow PRAVDA in Russian 7 Jul 84 p 2

[Article by A. Grachev, PRAVDA correspondent, Turkmen SSR: "Born in the Karakum"]

[Excerpts] Behind the line in the decisions of the 26th CPSU Congress: "To commission the Chardzhouskiy Petroleum Refinery..." (From the Basic Directions in the Economic and Social Development of the USSR During the Years 1981-1985 and During the Period Out to 1990).

It seems that it was quite recently that we stood next to the overheated GAZ and looked at the wavy sea of sand dunes that stretched around us and breathed with intolerably intense heat. The mirage was dense; it quivered streaming upward from the burning hot sand. Here and there, the braids of a stunted low bush, which had survived in the scorching heat and which had been bent over, stuck up. It was necessary to build a city and an oil refinery in this grim corner of Turkmeniya's Eastern Karakum 90 kilometers from the oblast center of Chardzhou.

The decision to build the Chardzhou oil refinery was dictated by the rapid development of industry and agriculture in Turkmenistan's eastern rayons and also in the neighboring oblasts of Uzbekistan and Kazakhstan. It was planned to refine oil thoroughly here, that is, to produce not only gasoline, diesel fuel and kerosene but also rubber, valuable essential oils.... The oil would come here from Western Siberia over a main pipeline.

Of course, it would have been more convenient, somewhat easier and cheaper to build it close to Chardzhou. This plan had been suggested. It would have been foolish, however to use the fruitful land that had been conquered from the Karakum with a great deal of difficulty. They stopped at the desert version.

The work began. It was not easy to build under the difficult climate conditions. Motors overheated from the heat -- equipment stopped. It was necessary to work in the morning, in the evening and at night. The interruptions in supply, the absence of people around about, the monotonous grey landscape,

the sandy wind, and the other "privileges" of the desert, of course, affected the people. All of them did not withstand the test firmly. The construction site selected people with a strong character who were honest in labor and friendship.

I remember how difficultly we pushed our way through the sand to the prospectors. The GAZ often skidded although it had two drive axles and it was necessary to push it. But now, we rushed here over a wide ribbon of concrete. In place of tents there were white buildings framed by still small trees. It was like a mirage. The verandas were intertwined with grapevines.

D. Rovshanov, chairman of the ispolkom of the settlement council, says: "In the future, a city with a population of 150,000 will stretch out here. The refinery will be constructed 12 kilometers from here. Now, 40 4-story houses and several two-story cottages are ready. This is our first microrayon. The lay-out of the second one is being planned. Incidentally, the houses are of an improved design. Naturally, they have gas, water, sewerage, and central heating. The water has been brought from the Amu-Darya."

A modern commercial center, a vocational trade school where personnel are being trained for the refinery, and a swimming pool are already operating. Coolness radiates near fountains that are surrounded by fragrant roses. Komsomolskoye Lake is a favorite place for the refinery workers to rest. It is a natural depression formerly overgrown with reeds. At one time, Basmatchi hid here, making bloody raids at night on the peaceful inhabitants who supported Soviet authority. The Komsomol members and youth of Neftezhavodsk have filled the depression with water. Now, they are building a park of culture and rest. At their own initiative. They are doing this in their free time. The design for Neftezhavodsk's green belt has been developed. It will protect the city on three sides from the hot winds and sand storms.

The subsidiary farm is able to stand on its own feet. Livestock and poultry are well housed, fodder has been stored up, and it has its own agricultural equipment. The workers are already receiving fresh meat from it. It is planned to expand and strengthen the farm. They have begun to plant a garden. They will make the table of the refinery workers more abundant in fruit and berries.

... Twelve kilometers are behind us, and before us is the labyrinth made from the metal, glass, brick, and cement of the oil refinery that is being built. The Turkmenvostokmefstestroy Trust is erecting this enterprise.

What does the refinery look like today? The majority of the structures have already acquired their final appearance. The administrative buildings and shops have been constructed, the equipment for the primary processing of oil has been installed, and that for the secondary is underway. The enterprise is being equipped with the latest equipment.

The brigade contract was introduced here for the first time in the republic. The competition of the cooperating partners in accordance with the principle "Worker's Relay-Race" is helping to shorten standard construction periods.

Many workers are mastering several trades. This permits intrashift idle time to be avoided during interruptions in supply. A construction industry base and repair service, which are the best in Turkmeniya, have been created; and the requirements of the plant and city for material are being completely satisfied.

They have been able here to overcome such misfortunes of many construction projects as the lagging behind in the construction of housing. It is possible to say that the growth in housing is outstripping that of the plant. Nevertheless, there are enough difficulties. Only men are building the oil refinery; the work there is not easy. The majority of the women are without work for the first time. The settlement council deputies found a solution. Upon their request and thanks to their persistence, a cotton-spinning factory is being constructed next to the settlement. Work will be found there for many women. Today, there is every condition for the first phase of the oil refinery to be put into operation at the end of the five-year plan. The main oil pipeline from Western Siberia has already reached Chinkent. This means that the builders must hurry. Everything, however, is still not turning out well. The help of the USSR Ministry of Construction, the Ministry of Petroleum Refining and Petrochemical Industry and the USSR Ministry of Installation and Special Construction Work is needed.

The main task is to speed up the construction of the heat and electric power station. Without it, it is impossible to start production: The oil must be warmed up and then refined. Unfortunately, they have only begun to construct the heat and power station -- and the job is going slowly. It is also necessary to improve the financing of the construction project. Strange as it may seem, resources have been reduced -- and this during the precommissioning period! The Turkmenvostokneftestroy Trust has been compelled to look for outside work, even in the republic's other oblasts. This is not very economical.

There is another problem -- retaining personnel. Essentially, there is still no alarm here yet. Here, they have reared and formed experienced workers and engineer technical personnel. However, the dampening of their ardor, which has been noticed at the construction project, and the incomplete employment of the international collective can turn into undesirable consequences-- people will begin to leave. It is, of course, impossible to permit this. On the contrary, it is necessary to attract here Komsomol members from Chardzhou and other cities of the republic and to assign more student construction detachments and specialists in installing the complicated equipment.

It is impossible not to take into account the fact that the refinery and city will restore the barren desert to life and will change the face of the Eastern Karakum. The economy of this kray will receive a new impetus.

8802
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GENERAL

YAMAL INFRASTRUCTURE DESCRIBED

Moscow PRAVDA in Russian 30 Jun 84 p 2

[Article by K. Mironov, first secretary of the CPSU Yamalo-Nenetsk Okrug Committee, Tyumen Oblast: "Yamal's Potential"]

[Excerpts] There is a compressor station called Vyngapur on the Urengoy-Chelyabinsk gas pipeline route. When the opportunity presents itself, I always try to visit the collective of this enterprise. The route settlement is a well-built one with all amenities, it has been well designed, and the colorful visual agitation is not simply persuasive but it also ennobles its appearance. People are listening to light music in a comfortable room -- they are not resting; on the contrary, they are in their work clothing and are preparing for a shift. It is a room for psychological relaxation. In the dining hall, there is a wide selection of dishes, and dairy products and greens are constantly on the tables. The Vyngapur line-production administration maintains a small dairy farm. It has its own hothouse complex that is being constantly expanded.

One, who comes here for the first time, is always surprised: "This is the polar region? This is a route settlement?" The surprise, perhaps, is justified. A lack of comfort predominates in one's ideas about the many settlements on the northern routes. Everything, however, depends on people and on their approach to the task. Communist N. Strelets heads the collective of the line-production center. This executive sees his duties to include not only the fact that production indicators always be up to the mark but also that this is done with animation and with a good attitude. An individual always works better if his domestic problems have been solved.

There is practically no turnover of personnel in the enterprise -- this is also the result of the comfort on the route. The workers and engineer technical workers, who have come from different parts of the country, gradually feel at home; they "become rooted" to the severe kray and do not try to leave here.

Our autonomous okrug has developed swiftly during recent years. Geological prospectors have created a good reserve of known oil and gas deposits and have provided a dependable base of hydrocarbon raw material stocks. The Medvezh'ye deposit reached its capability in an unprecedently short period of time. The

Urengoy gas extraction complex, which has still not achieved its design peak, has become the largest one in the branch. Next is the development of a gas giant located beyond the Arctic Circle -- the Yamburgskoye deposit.

Industry has changed the usual northern landscape. Where about 10-15 years ago only reindeer blazed paths and where solitary camps of nomad hunters stood, clear-cut highways now stretch, "corridors" of main gas pipelines cut the Taiga and the "steel meridian" of the railroad from Surgut has reached Urengoy and turned toward Nadyn and Yamburg. During the last five-year plan, two cities -- Novyy Urengoy and Noyabrsk -- and several large settlements have appeared on the map. The tempo of the transformations has, perhaps, no analogy in the entire history of Siberia. The fact that it became possible to place the mineral wealth of the North at the service of the country's economy in such a short period of time was only due to the fact that the party and government mobilized large material and labor resources to solve this multipurpose complex program and that they armed the builders with the latest achievements of scientific and technical progress.

The entire country is opening up the virgin gas lands. Several thousand individuals are becoming new Yamal citizens every month. Every individual -- it is his fate, his goal. Romance has summoned one; another comes to improve his material condition. A veteran in the "reserves" has several necessary specialties, but the newcomer only dreams of acquiring his first trade in the North. It is necessary not only to accept the thousands of new and very diverse Northerners, to take them on the staff and to provide them with everything that is necessary, but also to unite them and to create a single worker family that is attuned to highly productive labor.

Another difficulty is the fact that the drillers, oil workers and geological prospectors are still not able to do without watch-dispatch labor conditions. "Flying" brigades and expeditions work for two-three weeks in the North and then return to their cities that are located in the Carpathian, the Caucasus, the Volga area, and Belorussia. Many live in the base cities and settlements of Yamal and perform watch far from their native homes -- on the drills, on the route, on a remote construction site, and on the route of the seismic prospecting station. It is natural that the role of mass political work grows significantly under such conditions.

The party okrug committee persistently orients party committees and primary organizations on the search for and selection of everything that is progressive, that is given birth to by practice, and that brings good results in insuring the unity of organizational, ideological and economic activity. The program special purpose planning of ideological work during the construction of main gas pipelines has well proven itself. The Trassa special purpose program, which was given birth to by northern practices, has helped to accelerate the ahead-of-schedule commissioning of the Urengoy-Pomary-Uzhgorod export gas pipeline and the line portion of the northern sector of the new Urengoy-Tsentr-1 mainline. The program is aimed primarily at working with people.

V. Madenov's collective, for example, has worked for 10 years on the northern routes. During the past winter season, it laid the thousandth kilometer of large-diameter pipeline in the brigade's history. Two five-year plans under our conditions -- this is a solid record of service, and it did not take shape accidentally. Viktor Dmitriyevich was able to unite the route workers with a common goal. He found an individual approach to each one. The unchanged party group organizer, V. Kozodoy, enjoys no less respect than the brigade commander. All matters concerning production and public life and the living conditions of the route workers are within the field of influence of the party group.

I have known N. Glebov for more than 20 years. He was one of the first developers of the famous Urengoy. He is accustomed to working quietly but thoroughly; his work realism is based on a very detailed knowledge of the problems of each brigade member. The collective has become a true school not only for the professional but also for the civic formation of a young person. An entire galaxy of this Glebov's pupils head new collectives and are carrying the baton of northern work experience further. The departure of veterans is not reflected in the work of the Glebovites -- they force the young drillers to increase their skill and to master allied trades. Nikolay Dmitriyevich himself, who knows how to take a risk sensibly, boldly makes independent decisions. His brigade works far from the oil prospecting base. It works, as they say, under autonomous conditions. The public life of the small collective, however, does not stop. The authority of the brigade leader is supported by the energetic activity of the party group and the brigade council. The giving of reports by workers is practiced here, and the achievements and problems of each one of them do not go unnoticed.

We are directing party committees and primary party organizations toward the establishment of such strong work collectives. Under the specific conditions of the North, there is a lever, that Yamal potential, which will help to implement more effectively the program for developing our region.

A great economic force is also hidden in the experience of our best executives. Important leaders have grown up in the okrug party organization: V. Podshibyak-in, general director of the Yamalneftegazgeologiya Association, Leninist Prize winner and Hero of Socialist Labor; V. Strizhov, director of the Nadymgazprom Association and USSR Council of Ministers Prize Winner; I. Nikonenko, director of the Urengoygazdobycha Association and USSR State Prize winner; and others. Trust in an exactingness towards personnel, energetic support of good undertakings and the ability to find the main link in work and to see prospects are inherent in their work style.

Other examples, unfortunately, also occur. Responsible work was entrusted to a young engineer, N. Drobyshev who headed the Karskaya oil prospecting expedition. He perceived, however, the rights of an administrator as permitting everything: He began to treat his duties carelessly, he did not always consider the opinion of the party organization, he neglected the collective's education, and he abused his official position. For the large collective, this did not pass without leaving a trace -- the Arctic oil prospectors began

to surrender the positions that they had won. The Yamal Party Raykom approached the review of his personal file in a highly principled manner. N. Drodyshev was expelled from the party and released from the position that he occupied.

The primary duty and the deep internal requirement of each communist leader is to listen to the words that come from the workers' midst and from the forward edge of socialist construction. Thus the party teaches us meetings in labor collectives and the expressed comments and proposals of workers permit the needs of Northerners to be taken into consideration more concretely; yes, and -- judging by my own experience -- infect with the necessary energy for a long time.

In speaking about what has been done and what has been achieved, I am far from the thought that everything, which is difficult, is behind us and that we have no problems and unresolved tasks. Today, there are many problems; however, of course, those conditions, which existed in the Tyumen north even several years ago are in no way comparable with those which we have today.

The cities and population centers are being constructed with a definite level of comfort; there are schools, hospitals, clubs, and libraries in all settlements. The absolute majority of the population has an opportunity to watch Central Television broadcasts. The housing towns of the route workers today cannot be compared with the wagon blocks of the first travelers. The watch complexes of our native production and those, which our friends from the Czechoslovak Socialist Republic and the builders of Finland have sent to us, are comfortable and cozy. It is necessary to admit honestly that our builders formerly turned over these settlement complexes only after the commissioning of a large production installation. The party committees had to intervene and correct the economic executives. Today, the following policy has been adopted -- housing and social, cultural and domestic installations are turned over at the same time as the industrial complex. You see, our task is the attachment of people for a long period of time and for long northern work.

I would only like to ask those, who form the shock Komsomol detachments at the construction sites of Yamal, that they pay attention not only to the romantic longings of the young person -- this, of course, is extremely important-- but also to his training: physical and professional, and to his store of morals. The North is a severe tester; sooner or later, it rejects an individual who does not possess the proper moral criteria. It is always necessary to remember that the development of the North is not cheap for the state, and that the fewer mistakes we make in selecting personnel, the more effective will our contribution become to the country's economy.

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GENERAL

NEW DRILLING TECHNOLOGY DESCRIBED

Leningrad LENINGRADSKAYA PRAVDA in Russian 29 Jun 84 p 2

[Article by V. Tveritina: "Mineral Wealth Prospectors"]

[Text] "To turn over models of new self-propelled drilling equipment in the highest quality category to inspection commissions." (From the 1984 socialist obligations of the All-Union Scientific Research Institute for Prospecting Methods and Equipment)

At the very height of the spring season of bad roads, tests of a self-propelled drilling device, which had been created in the design section of the All-Union Scientific Research Institute for Prospecting Methods and Equipment, were conducted. The ground, which had swollen with moisture, did not permit even light tractors on the fields. Looking at this picture, some of the designers began to doubt: Is it worthwhile to conduct the tests now? Would it not be better to wait a little while until the ground dries out? Nevertheless, they decided to try. Here is the result: The nearly eight-ton assembly, which was mounted on a vehicle chassis, covered 550 kilometers over bad roads and spring troughs, passing the first test with an "excellent" rating.

Not so long ago, the delivery of equipment for drilling 500-600-meter wells in the remote rayons of our country was considered a serious production problem. Judge for yourselves: The transportation and assembly of only one assembly at the site took almost eight percent of the time that was required for performing the entire drilling work cycle. Moreover, the design was used only six months of the year because of imperfections in individual items. How could the device be made self-propelled and made to operate in any climate zone of the country? The workers of the drilling equipment section had to answer this question.

G. V. Ponomarev, the section chief, says: "Placing the frame of a drill on a vehicle chassis was not a very difficult matter. With such a load (and the weight of a standard device of this class is more than 10 tons), however, the vehicle would not be able to move under conditions of bad roads. But, you see, this was our primary task. Therefore, we had to solve a number of problems that were connected with lightening the entire design."

Simply decreasing the weight of individual items would mean making them undependable. This path was not, understandably, suitable. Experienced specialists-- V. F. Timoshenok, B. G. Dayev and A. A. Sadykov -- undertook the search for a different solution.

One day after the next debate on this subject, Vladimir Fedorovich Timoshenok, the chief designer, suggested: "Perhaps, we can completely remove the engine from the drilling device?"

The idea was so unexpected that his colleagues did not understand at first: "What do you mean 'remove it'?" V. F. Timoshenok quickly drew a diagram on a piece of paper. "Here is how. Our device will be on a vehicle, and this means that it is possible to use the vehicle motor for the operation of the drill. Thereby, we will not only decrease the weight but we will also save fuel." Later, when they had studied the calculations, even the skeptics were convinced of the correctness of the proposed idea. The search for new engineer solutions, however, did not end with this. It was necessary to perform a whole series of tasks connected with decreasing the metal-intensiveness of the device. It is necessary to mention that the designer collective coped with them successfully.

The drillers in our country's southern rayons have already had time to evaluate all the advantages of the self-propelled drilling device. Tests on prototypes, which were conducted in the Cherkasskaya geological prospecting expedition, showed their high reliability. The preparatory operations in assembling the equipment now took under average conditions of difficulty hardly more than 15 minutes whereas formerly more than a week was spent on this. The labor productivity of the drillers was increased by 11 percent due to the complete mechanization of the work. The annual economic effect from only using one device was 15,000 rubles.

Now, when the search for minerals leads geologists far to the north, the question of creating technical prospecting systems, which would lighten the work of the drillers under the grim conditions, arises especially sharply. That is why the workers in the All-Union Scientific Research Institute for Prospecting Methods and Equipment have developed along with the first model of the self-propelled device a second one -- designed especially for the rayons of the Far North. Despite the fact that already discovered engineer solutions were basically used during the work on this design, it is significantly different from the first model.

On what should the equipment be mounted? Formerly, it was necessary literally to drag it to the well drilling site, cutting a wide opening in the taiga. A motor vehicle would not move here. They decided to make calculations with the goal of using a logging tractor. As the tests, which were conducted, showed, this hero was capable of delivering the drilling equipment over poor roads, swamps and taiga.

Testing of the second model is continuing today in the unwelcoming mountain taiga rayons of Krasnoyarsk Kray. Its results give hope: First of all, work time has begun to be used more rationally. Whereas formerly the drillers worked only during the summertime, the assembly's heated cab now provides an opportunity to work in it year round. As a result, the number of wells drilled during a year has doubled. The opportunity to use inclined holes during drilling has appeared -- this is a new feature of this equipment. It permits the assigned point of the geological section to be reached by the shortest route. In a word, the advantages are evident.

The designers managed the difficult task in a very compressed period of time. The institute's workers developed all of the production forms and records for the two types of self-propelled drilling assemblies in four years and transmitted them to the manufacturing plant in the city of Bryanka where test models of both assemblies were made. During the third quarter of the present year, the collective -- strictly in accordance with its obligations -- decided to put the second model of the self-propelled drilling device for the rayons of the Far North into serial production along with the first one.

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GENERAL

GASIFICATION PROBLEMS IN ARMENIA DETAILED

GF181902 Yerevan SOVETAKAN AYASTAN in Armenian 2 Sep 84 p 2

[Interview granted by Sabir Stepanyan, chairman of the Armenian SSR State Committee for Gas Supply, to SOVETAKAN AYASTAN correspondent Araksya Ovanessyan; date and place not specified]

[Text] [Question] The gas industry in Armenia has a history of almost a quarter of a century. It is interesting to know the path taken by our gas network construction workers and the standard of gasification development in our republic. Certainly I am taking into consideration the volume of gas supply and procurement.

[Answer] I say that it was a path full of struggles and work achievements thanks to which the today's gasification standard in our republic was secured. Gasification is currently the basis of all our national economy branches and it amounts to 45 percent in the fuel balance.

In 1960 when for the first time the blue fire torch was lighted in our republic, gas consumption in that year was a mere 112 million cubic meters. At present, gas is supplied to 57 cities, 914 villages, 523 industrial enterprises, 911 boiler houses and 813 municipal and housing installations.

[Question] How much gas will be consumed this year?

[Answer] We will consume 4 billion cubic meters of gas this year. I am able to point out happily that our republic occupied a prominent place with the standard of housing gasification.

[Question] What can you say about gas supplied to the rural population?

[Answer] Gas has basically changed the life of the rural population and relieved them from the worries of fuel supply. Last year natural gas was introduced in Dzankezur region. In the coming 5-year plan period it will be received by Yekhegndzor, Azizbekov and Megri rayon residents. In the coming years the premountainous and mountainous rayons will be further gasified.

[Question] I believe that increasing the introduction of gas in the various branches of economy and people's houses is increasing its organized and safe supply.

[Answer] Yes, in all the cities and rayon centers of the republic, centers for the repair of household goods and dispensary services have been organized and the emergency and dispatch services are operating continuously.

[Question] As is known, winter raises gas usage. What is being done to secure a regular and stable gas supply during the winter months?

[Answer] Under the irregular seasonal gas consumption conditions, and in order to provide gas in our republic, underground gas reservoirs have been completed. Capabilities are being explored to create gas reservoirs with small capacities in various locations of the republic.

The limited discipline for the use of gas is another condition for the regular gas supply. Our work with the party and Soviet organs last year resulted in the notable increase of discipline of gas consumption in the republic's establishments and enterprises. Engineering and technical measures enabled us to overcome difficulties in the winter.

[Question] I believe that in these cases the task of rational use of gas becomes larger.

[Answer] Certainly, the rational use of gas is a task of governmental importance. The strictest regime for saving fuel resources is being implemented; gas consumption equipment is being modernized and installed with control and measuring instruments; the fuel industry is being ordained; and the boiler units are being chemically cleaned. Thanks to the abovementioned works over 6 billion cubic meters of gas will be saved in 1984.

[Question] The national economy is being greatly harmed by the corrosion of underground metal structures. How is the struggle against corrosion being organized?

[Answer] Indeed, corrosion is an evil which is causing huge losses to our national economy. Thus, the struggle against it occupies a primary place in the work of the State Committee for Gas Supply. Nearly 1,200 electric protection units operate in the gas networks to protect the 2,100 kms of gaspipes from electric and chemical corrosion.

The struggle against corrosion would be more efficient if the organization commissioning the underground metal structures paid appropriate attention to their protection. Unfortunately, the construction of low-quality water-pipes and heating networks is being noticed as well as violations of state and other standard requirements.

[Question] What are the dimensions of gasification development and the tasks of the committee?

[Answer] The Armenian Communist Party and the republic's Council of Ministers display great care toward the development of gas industry, raising gasification standards and the people's welfare. There are complicated and substantial tasks before us and the workers of the Armenian SSR State Committee for Gas Supply are not sparing any efforts for their realization.

GENERAL

REVIEW OF BOOK ON OIL INDUSTRY

Moscow LITERATURNAYA GAZETA in Russian 27 Jun 84 p 10

[Review by Yu. Vladimirov of book "Delo Zhizni" [A Matter of Life] by N. K. Baybakov, chairman of the USSR Gosplan and deputy chairman of the USSR Council of Ministers, Izdatel'stvo "Sovetskaya Rossiya", Moscow, 1984]

[Text] During recent years, quite a few historical generalistic works by soviet, party and state figures and important organizers of the national economy have appeared. Among them is the recently published book by N. K. Daybakov entitled "Delo Zhizni" [A Matter of Life] whose subject itself and rich factual material permit it to be related to the genre of actual documentaries and to the works that analyze and summarize experiences which are extremely valuable for us.

Essentially, the book, which has been written by N. K. Baybakov, is a biography of our native oil industry. The author provides us with a retrospective of the development of the leading energy branch during the past 120 years and, in this regard, naturally directs the main attention toward the post-October period -- to the "Soviet oil era" as he himself calls these years.

The originality of the book lies in the fact that it was written by a man who headed the country's oil industry for many years, who travelled the path from a simple engineer tradesman in Baku to a people's commissar and minister of the USSR, and who now occupies the post of chairman of the USSR Gosplan and deputy chairman of the USSR Council of Ministers. His enormous organizational and economic experience -- "The eternal teacher of life" -- helps Nikolay Konstantinovich Baybakov to talk in details and personages about the difficult oil work during the first Soviet five-year plans, about the grim war days, about postwar construction.... The Second Baku, the Third Baku.... How many wonderful, although filled with work, events did he undergo!

There is no need to mention all the addresses and chronology of the events depicted in the book. I want to emphasize the "presence effect": where rapidly and in passing but where stopping on the path for a long time also, the reader and the author make a review trip to all the main places in the "museum of oil history". Famous people are encountered: I. M. Gubkin, an academician; G. T. Ovnatyanov, an engineer and oil worker from Azerbaijan;

Yu. G. Erv'ye and F. K. Salmanov, the first developers of the Tyumen oil and gas store houses; A. G. Grigor'yeva, chairman of the Surgutskiy Rayispolkom; V. I. Muravlenko, chief of Glavtyumenneftegaz, ...

In general, it is necessary to mention that N. K. Baybakov's love for the Tyumen kray and for the "Siberian Baku" is perceptible everywhere. I have had occasion to visit Tyumen and to be astonished myself at the scale of the changes and the uncommon progress in everything. I am not surprised at this love, this partiality. Only one thing can be surprising -- the tempos and the selflessness and optimism of the people. Who does not know the conditions of Western Siberia, especially its North! Nevertheless, there is only one thing -- the "Tyumen acceleration"! It is a fact, not only words

Another predilection of the author is also sensed in the book. He is an engineer, and everything of an engineer nature is not foreign to him. He is a scientist and a researcher, and he is not indifferent to the fate of discoveries, research and solutions. In the foreward to "Delo Zhizni", Academician A. A. Trofimuk writes about this -- in my opinion, very accurately: "... He always establishes a favorable condition for scientific and engineer discussions and debates... It is impossible not to emphasize this quality of the author, which is exceptionally useful for developing any matter".

Proximity to the matter and to practice, the ability to combine this "earthly" subject with the problems of state strategy are a quality of arch importance for the modern leader. I would like to mention that the production life of oil workers is regarded in the book in this context-- as a set of economic, social and moral tasks. Scientific and technical progress cannot have a self-sufficing significance; man along with equipment -- not "man on the side". The building-up of oil extraction capabilities does not remove the construction of housing, schools and hospitals from the agenda -- if the state expends 20,000 rubles for each person arriving in the Tyumen north, these expenditures, understandably, should not be scattered to the wind.

The author includes us in the sphere of past and present social concerns and of near and far prospects. Socialism for him is a living and real matter. From this point of view, a continuation is guaranteed to the book. By life itself. By people who must carry the baton of the trailblazers further.

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